Welcome To MLOps

Session - 1

Git and Github

Sep 29, 2025

AGENDA

1. Git
2. Github
3. Terminologies (Project) - Push, Pull, Commit
4. Branching
5. Conflict Resolution
6. Contribute to open source projects

Leverage

Module Agenda

1. Git-HUB
2. Build an ML application, and deploy it. - Streamlit.
3. Deploy ML Endpoint - APIs, Flask.
4. Docker - container, containerization.
5. CI/CD - 2 sessions.
6. Experiment Tracking - MLFLOW
7. System Design - 2 sessions (Introduction)
8. SageMaker - AWS
9. Apache Spark - Distributed Computing.

MLOps

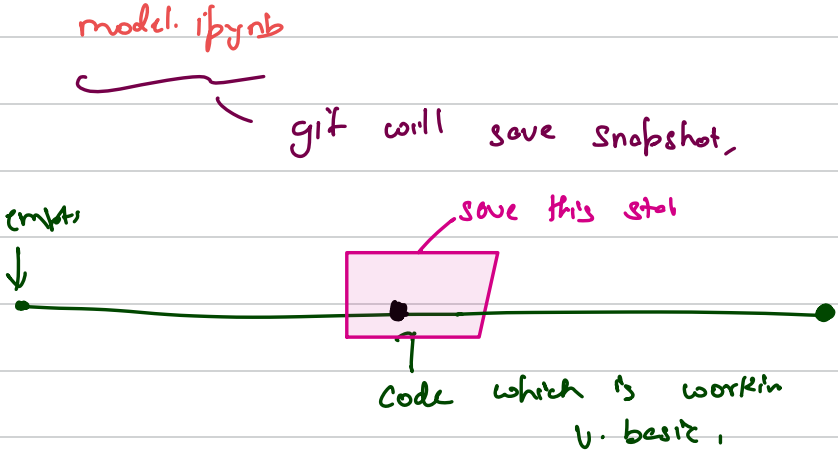
Machine Learning Pipeline.

MLOps vs DevOps debate

Is MLOps actually like DevOps?

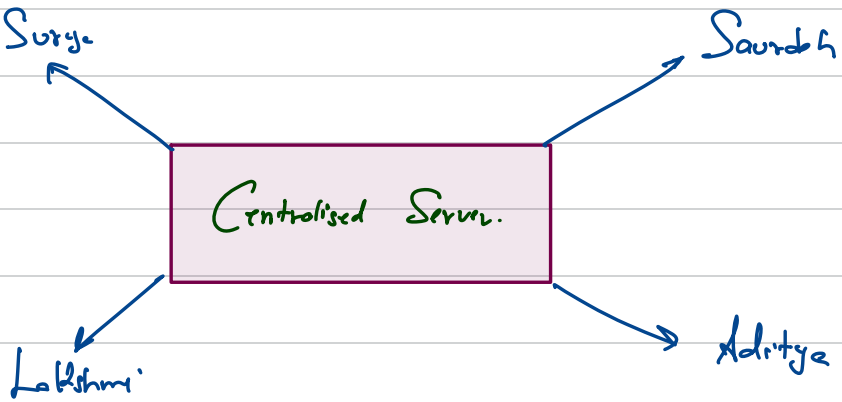
GIT

Open Source - Version Control System



Different types of version control system.

1. Centralized Version Control System



Pros:

1. Everyone will get latest code, no old-code.
2. Maximum/High security.
3. No Conflicts.
4. Real time update and monitoring.

Cons:

1. Central point of failure.
2. Scalability Issues.
3. Limited offline capabilities.

1.

2. Disributed Version Control System

Pros:
High concurrency
Very scalable
Offline capabilities
disaster recovery

Cons:
less security.

GITHUB

Email → Gmail
Yahoo
Zoho
Proton

GIT → Github (Microsoft)
Github (GitLab)
Bitbucket (Atlassian)
Code-commit (Amazon)

What is Git?

4 options
Active Duration (Most preferred: 30 seconds)

Appears for | 60 Secs

A	A nickname for GitHub.
B	A programming language.
C	A remote repository platform.
D	A version control system.

2	Rajesh Sharma	1/1 ⚡ 96.27
1	Riddhi Tatke	1/1 ⚡ 96.30
3	Aniket Gulhane	1/1 ⚡ 95.13
4	Manoj Narware	1/1 ⚡ 95.03
5	Anoop	1/1 ⚡ 94.90
6	Abhishek Kurhade	1/1 ⚡ 93.73
7	Surya Prakash	1/1 ⚡ 93.25
8	Nagaraj S H	1/1 ⚡ 92.57
9	Vinay Yelanadu	1/1 ⚡ 92.03
10	lakshmi santhi	1/1 ⚡ 86.57

Which of the following is true about Centralized version control system??

1 user has participated

A	It does not rely on the central server	0%
B	It is victim to single point of failure	0%
C	It rely on the central server	0%
✓ D	Both B & C	100%

End Quiz Now

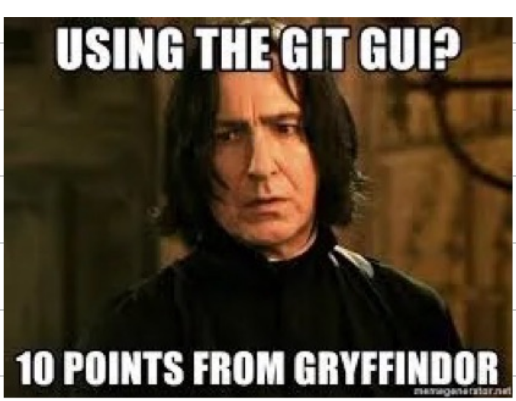
2	Anoop	2/2 ⚡ 187.63
1	Riddhi Tatke	2/2 ⚡ 189.30
3	Abhishek Kurhade	2/2 ⚡ 184.80
4	Aniket Gulhane	2/2 ⚡ 184.57
5	Vinay Yelanadu	2/2 ⚡ 183.40
6	lakshmi santhi	2/2 ⚡ 180.50
7	Manoj Narware	2/2 ⚡ 180.10
8	Nagaraj S H	2/2 ⚡ 176.17
9	Amit Binjola	2/2 ⚡ 172.97
10	sarita Chauhan`	2/2 ⚡ 149.73

Github Terminologies

1. Repository: Fancy word for a folder that contains code/documents, etc.
2. Local Repo: Folder on my local computer (may or may not be present on the cloud)
3. Remote Repo: Folder on my online VCS (may or may not be present in my local)

Commands:

1. Commit: Fancy word for "save"
2. Fetch: You check online, if any there's update in the online repo, that's not present in your local.
3. Pull: You update local repo, with the most recent changes you've in remote.
4. Push: You update the remote repo, with the most recent changes you have in local.

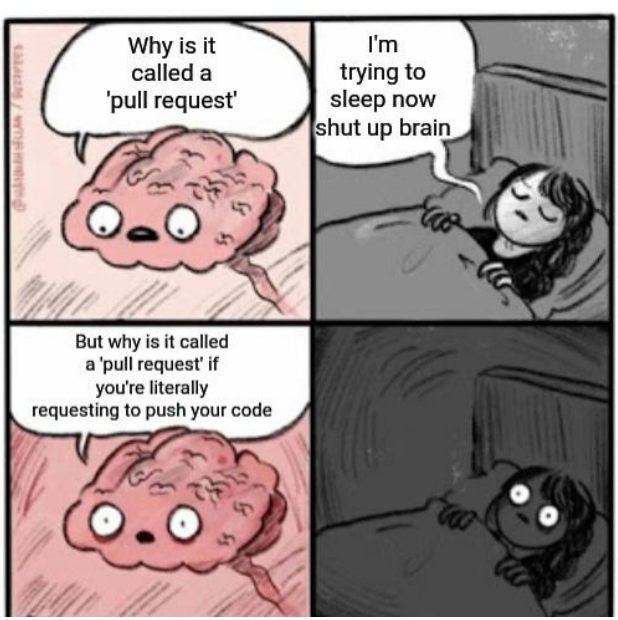


Branches

Main / Master - branch (most stable code)

↳ v1 branch (copy of my main branch)

Main branch



Any online public repository — clone

— create branch

→ push to repo. ✗

Zip → Just download Code - good for one time

Clone → Get a copy of code -> metadata

↳ updatin

→ Reviewi.

Contribute to open Source

↓

Can make first change → Fork of repo on my account

once changes are made → Push

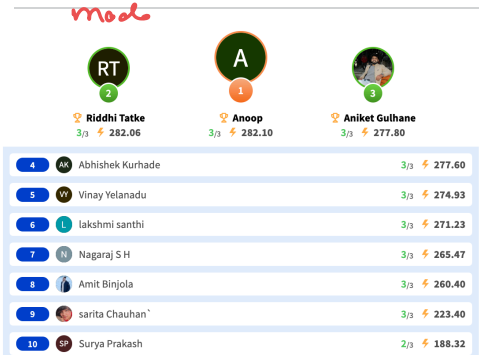
↓ Create full rep

In Git, a branch is:

0 users have participated

A	A secret part of Git config.	0%
B	A separate version of the main repository.	0%
C	A remote repository on someone elses account	0%
D	A new repository with no code in it	0%

End Quiz Now

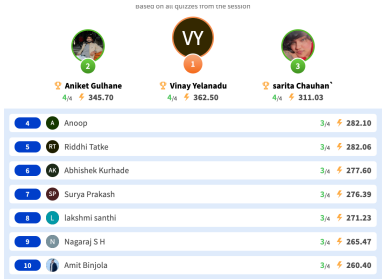


Which of the following is not true about git?

0 users have participated

A	By default Git has a master branch	0%
B	Git clone operation creates the instance of the repository.	0%
C ✓	Pull operation copies the changes from a local repository to remote repository	0%
D	All of the above	0%

End Quiz Now

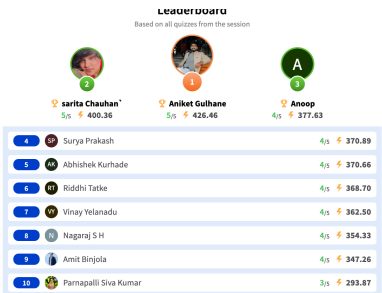


What is the opposite of a GIT clone?

0 users have participated

A ✓	GIT push	0%
B	GIT add	0%
C	GIT upload	0%
D	GIT status	0%

End Quiz Now



$$\text{Lift}(X \rightarrow Y) = \frac{P(X \cap Y)}{P(X) * P(Y)}$$

$$\text{Leverage}(X, Y) = P(X \cap Y) - P(X)\,P(Y)$$